



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,086	11/13/2003	Kazuhisa Yamamoto	YAO-3750US2	7925
23122	7590	09/28/2005	EXAMINER	
RATNERPRESTIA			RODGERS, COLLEEN E	
P O BOX 980			ART UNIT	
VALLEY FORGE, PA 19482-0980			PAPER NUMBER	
			2813	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/712,086

Applicant(s)

YAMAMOTO ET AL.

Examiner

Colleen E. Rodgers

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 78-83 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 78 and 82 is/are rejected.
- 7) ☒ Claim(s) 79-81 and 83 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/13/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This Office Action responds to the communication of 18 November 2004. The Notice of Non-Compliant Amendment of 4 June 2004 under 37 CFR 1.121 is hereby vacated.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 78 is rejected under 35 U.S.C. 102(b) as being anticipated by Mizuuchi et al (USPN 5,323,262).

Regarding claim 78, Mizuuchi et al discloses a method for producing an optical element, comprising: a step of forming a proton exchange layer in an  $\text{LiNb}_x\text{Ta}_{1-x}\text{O}_3$  ( $0 \leq X \leq 1$ ) substrate [see the Abstract, where  $X = 0$ ]; a high-temperature annealing step of performing a heat treatment for the substrate at a temperature of 150°C or higher [see col. 5, lines 37-39 and col. 9, lines 61-64, where the Curie temperature is given as 604°C]; and a low-temperature annealing step of performing a heat treatment for the substrate at a temperature of 120°C or lower for 1 hour or more [see col. 3, lines 40-41] so as to mitigate strain introduced in the proton exchange layer by the high temperature annealing step. The limitation “so as to mitigate strain introduced in the proton exchange layer by the high temperature annealing step” is merely an intended use and is not granted patentable weight.

4. Claim 82 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al (USPN 5,253,259).

Yamamoto et al discloses a method for producing an optical element, comprising: a step of performing a proton-exchange process for an  $\text{LiNb}_x\text{Ta}_{1-x}\text{O}_3$  ( $0 \leq X \leq 1$ ) substrate [see col. 5, lines 51-56]; a first annealing step of performing a first heat treatment for the substrate at a first temperature, after performing the proton exchange process [see col. 1, lines 61-65]; and a second annealing step of performing a second heat treatment for a substrate at a second temperature, after performing the first heat treatment [see col. 1, lines 65-68; col. 5, lines 49-51], wherein the second temperature is lower than the first temperature by 200°C or more. The first process step cited above occurs at about 1100°C and the second occurs at 350°C, which results in a temperature differential of 750°C.

5. Claim 82 is rejected under 35 U.S.C. 102(b) as being anticipated by Nutt et al, "Simple control of Ti-diffused  $\text{LiNbO}_3$  waveguide profile and propagation characteristics," *Electronics Letters*, Vol. 24, No. 1, 7 January 1988, p. 56-58.

Nutt et al discloses a method for producing an optical element, comprising: a step of performing a proton-exchange process for an  $\text{LiNb}_x\text{Ta}_{1-x}\text{O}_3$  ( $0 \leq X \leq 1$ ) substrate [see paragraph bridging pages 56 and 57]; a first annealing step of performing a first heat treatment for the substrate at a first temperature, after performing the proton exchange process [see paragraph bridging pages 56 and 57]; and a second annealing step of performing a second heat treatment for a substrate at a second temperature, after performing the first heat treatment [see paragraph bridging pages 56 and 57], wherein the second temperature is lower than the first temperature by 200°C or more. The first process step cited above occurs at about 1000°C and the second occurs at 210°C, which results in a temperature differential of 790°C.

Art Unit: 2813

***Allowable Subject Matter***

6. Claims 79-81 and 83 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen E. Rodgers whose telephone number is (571) 272-0237. The examiner can normally be reached on Monday through Friday, 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CER

  
GEORGE ECKERT  
PRIMARY EXAMINER